

Claims

What is claimed is:

- 5 1. A method for providing a telecommunication service in a wireless telecommunication system which comprises at least one wireless local network, at least one public mobile network, at least one mobile station supporting both of the networks and at least one terminal, the method comprising the steps of:
 - 10 checking availability of the requested data transmission service and reachability of the terminal in the local network in response to the mobile station being attached to the local network and data transmission being desired between the mobile station and the terminal,
 - transmitting a service request from the mobile station to the public
 - 15 mobile network in response to the data transmission service not being providable substantially in accordance with the service request and/or the terminal not being reachable via the local network.
2. A method as claimed in claim 1, wherein a primary network is
 - 20 determined in the mobile station,
 - the primary network determined in the mobile station is checked when a need arises to transfer data between the terminal and the mobile station, and
 - the availability of the requested data transmission service and the
 - 25 reachability of the terminal first in the primary network are checked in response to the mobile station being located in the coverage area of the primary network.
3. A method as claimed in claim 1, wherein
 - 30 the mobile station checks whether the terminal belongs to the local network in response to the mobile station being attached to the local network and data transmission being desired between the mobile station and the transfer,
 - the service request is transmitted from the mobile station to the lo-
 - 35 cal network in response to the terminal belonging to the local network, or
 - the service request is transmitted to the public mobile network.

4. A method as claimed in claim 1, wherein
a service request is transmitted from the mobile station to the local
network,
5 the availability of the requested data transmission service and the
reachability of the terminal are checked,
a message is transmitted from the local network to the mobile sta-
tion in response to the data transmission service not being providable sub-
stantially in accordance with the service request and/or the terminal not being
10 reachable via the local network, and
the service request is transmitted from the mobile station to the
public mobile network in response to said message received from the local
network.
- 15 5. A method as claimed in claim 4, wherein
said message comprises a command to transmit the service request
to another network.
- 20 6. A method as claimed in claim 5, wherein the local network de-
termines the network whereto the mobile station should send the service re-
quest,
said message comprises a command to transmit the service request
to the determined public mobile network, and
the service request is transmitted to the public mobile network de-
25 termined in said message.
7. A method as claimed in claim 4, wherein
the mobile station maintains a list on networks wherefrom services
are sought,
30 the mobile station determines, in response to said message, the
network whereto the service request should be transmitted, and
the service request is transmitted to the public mobile network de-
termined on the basis of the list.
- 35 8. A method as claimed in claim 4, wherein

a location database of the local network is checked to determine whether the terminal of the called number included in the service request is attached to the local network, and

said message is transmitted from the local network to the mobile station in response to the terminal not being attached to the local network.

9. A method as claimed in claim 8, wherein the called number is associated in the location database with a second number,

said message comprises the second number, and
the service request comprising said second number is transmitted to the public mobile network.

10. A method as claimed in claim 1, wherein the mobile station also measures signal levels of base transceiver stations or access points comprised by the local network in response to the public mobile network providing data transmission service to the mobile station,

a service request is transmitted from the mobile station to the local network for obtaining the data transmission service in response to the access point or base transceiver station of the local network providing a sufficient signal level,

the availability of the data transmission service and the reachability of the terminal in the local network are checked,

a connection to the terminal via the local network is established in response to the data transmission service being providable substantially in accordance with the service request and the terminal being reachable via the local network, and

the connection to the terminal via the public mobile network is released.

11. A method as claimed in claim 1, wherein

the mobile station also measures signal levels of the base transceiver stations comprised by the public mobile network in response to the local network providing data transmission service to the mobile station,

the service request is transmitted from the mobile station to the public mobile network in response to the signal levels of the measured access points or base transceivers stations of the local network being substantially

lower than the signal level of the base transceiver station of the public mobile network, and

the connection to the local network is released after establishing a connection to the terminal via the public mobile network.

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12. A wireless telecommunication system comprising a wireless local network, at least one public mobile network, at least one mobile station supporting both of the networks and at least one terminal, wherein

the system is configured to check availability of a data transmission service and reachability of a terminal in the local network in response to the mobile station being attached to the local network and data transmission being desired between the mobile station and the terminal,

the mobile station is configured to transmit a service request to the public mobile network in response to the data transmission service not being providable substantially in accordance with the service request and/or the terminal not being reachable via the local network.

13. A telecommunication system as claimed in claim 12, wherein the mobile station is configured to check whether the terminal belongs to the local network in response to the mobile station being attached to the local network and the data transmission being desired between the mobile station and the terminal,

the mobile station is configured to transmit the service request to the local network in response to the terminal belonging to the local network, or

the mobile station is configured to transmit the service request to the public mobile network.

14. A telecommunication system as claimed in claim 12, wherein the mobile station is configured to transmit the service request to the local network,

the local network is configured to check the availability of the requested data transmission service and the reachability of the terminal,

the local network is configured to transmit a message to the mobile station in response to the data transmission service not being providable substantially in accordance with the service request and/or the terminal not being reachable via the local network, and

the mobile station is configured to transmit the service request to the public mobile network in response to said message received from the local network.

5 15. A telecommunication system as claimed in claim 14, wherein
the local network is configured to determine the network whereto
the mobile station should transmit the service request,
the local network is configured to send a command in said message
to transmit the service request to a determined public mobile network, and
10 the mobile station is configured to transmit the service request to
the public mobile network determined in said message.

15 16. A telecommunication system as claimed in claim 14, wherein
the mobile system is configured to maintain a list on networks from
which service is sought,
in response to said message, the mobile station is configured to
determine a network on the list, whereto the service request should be trans-
mitted, and
the mobile station is configured to transmit the service request to
20 the public mobile network determined on the basis of the list.

17. A telecommunication system as claimed in claim 12, wherein
the local network supports IEEE802.11 standard or is based on
GSM-standard-supporting base transceiver stations and radio access gate-
25 ways performing protocol conversion between the IP network and the GSM
network, and
the public mobile network supports the GSM standard.

30 18. A mobile station comprising means for establishing a data
transmission connection to a wireless local network and to a public mobile
network, wherein the mobile station is configured to transmit a service request
to the local network in response to the mobile station being attached to the lo-
cal network and data transmission being desired between the mobile station
and a terminal, and
35 the mobile station is configured to transmit the service request to
the public mobile network in response to the data transmission service not

being providable in the local network substantially in accordance with the service request and/or the terminal not being reachable via the local network.

5 19. A mobile station as claimed in claim 18, wherein the mobile station is configured to check whether the terminal belongs to the local network, and

 the mobile station is configured to transmit the service request to the public mobile network in response to the terminal belonging to the local network.

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 20. A mobile station as claimed in claim 18, wherein

 the mobile station is configured to maintain a list on networks wherefrom service is sought,

 in response to a service reject message sent by the local network,
15 the mobile station is configured to determine a network on the list whereto the service request should be transmitted, and

 the mobile station is configured to transmit the service request to the public mobile network determined on the basis of the list.